Agriteach 4.0

NEWSLETTER

Connecting VET Teachers to Agriculture 4.0 Erasmus+ 2017-1-HU01-KA202-035964

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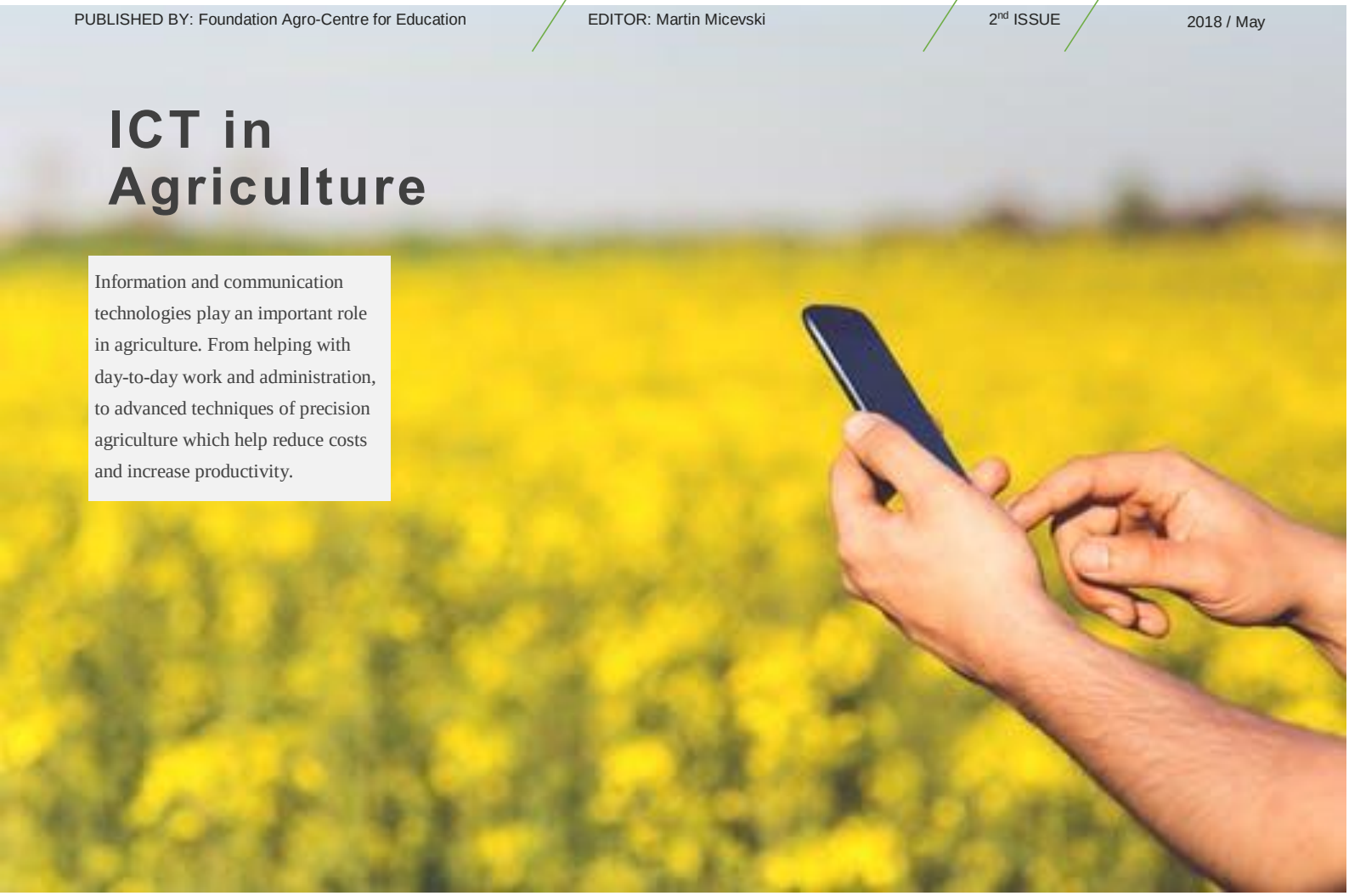
ICT in Agriculture

Information and communication technologies play an important role in agriculture. From helping with day-to-day work and administration, to advanced techniques of precision agriculture which help reduce costs and increase productivity.



High-tech agriculture for the next generation

It has been demonstrated that the ability of the agricultural community to connect to knowledge databanks, networks, and institutions, through information and communication technologies substantially improves agricultural productivity. Such a model is generally referred to as e-Agriculture.

There are several key factors that can determine how well will ICT and Precision Agriculture be utilized in the future.

One of the first hurdles is actually technical in nature. It doesn't matter if there is a cool new technology that could help farmers tremendously - if the ICT infrastructure is insufficient, there is not much you can do.

Another issue is the level of knowledge and skill within the agricultural workforce itself. As far as new technologies are concerned, the older generation of farmers are not really invested in the idea of modern high-tech agriculture. Moreover, most young people view farming as some ancient relic of the past, which is necessary to bring the food onto the table, but is not worth pursuing.

This is where new teaching methods and awareness campaigns can have the most meaningful impact. On one hand, they can help bring the more seasoned farmers up to speed with the newest trends, and prevent creation of generational gaps. On the other hand, quality education can capture a fresh audience of young people and get them interested in agriculture.

WHAT IS PRECISION AGRICULTURE EXACTLY?

Precision Agriculture is the concept of modern agriculture management using digital technologies for monitoring and optimizing production processes in the agriculture.

The term Precision Agriculture covers many different areas and various technologies, which can be utilized to optimize costs and productivity in agricultural production.

Precision Agriculture uses satellite navigation and navigation positioning systems, as well as a number of other technologies. These include: automatic steering control, prescribed trajectories, automatic vehicle rotation, precision sowing, targeted use of fertilizers, data analysis obtained from remote sensing, utilization of UAVs to create map databases etc.

METODOLOGY

The questionnaire was consisted of 30 questions which could be complemented by additional questions on a voluntary basis. The same questionnaire was used in both Macedonia and Hungary. The survey can serve as a guide for the further steps in the Agriteach 4.0 project, enabling to map the opinion and preparedness of the majority of the participant teachers. The survey was undertaken online, on the web portal agriteach.hu

HUNGARY

Today, digitalisation is one of the key driving forces of competitiveness, growth and welfare. Therefore, the Hungarian Government is committed to digital developments. The Government has prepared the Digital Success Programme (DSP) aimed at the digital development of the Hungarian society and the Hungarian national economy based on the results of the InternetKon survey.

In Hungary, the digital economy makes up to 20% of the gross value added (GVA) of the national economy as a whole, and provides work to nearly 15% of all employees. (IVSZ-Századvég, 2015). The sector – including, in particular, the ICT processing industry – is characterised by the presence of large companies, while domestic small and medium-sized enterprises have an increasing role in the ICT services segment, which comprises software and application development companies, among others.

Since 2015, in Hungary, the vocational training system has been updated to provide an adequate response to the changing trends in the education system, economy and the labor market. The reform aimed at better skills formation for young people and adults, including combined training. Most VET schools were transferred under jurisdiction of the Ministry for National Economy, based on which it has set up 44 VET centres in 2015/16 – a new VET institution type in order to make VET more flexible and responsive to labour market needs. This has led to enrolment of more than 20 000 adults (above the age 25) that participate in adult education in evening courses.

MACEDONIA

The Republic of Macedonia is one of the few countries in Western Balkan Countries (WBCs) who have recognized ICT, as an important sector for their future growth. The Republic of Macedonia boasts an impressive broadband penetration rate of 32% on a national level, with 100% company Internet connectivity. Moreover, the Internet access in schools and Wi-Fi based public Internet access is already rolled out with very high percentage of the national coverage, including remote areas.

Macedonian schools offer one web-enabled computer for every 1.45 children (ITU, 2012). Nowadays, the ICT sector is a hot topic in the country, as it is among the top Government priorities. The sector itself is led by two strategic documents: Information Society Strategy and National Broadband Strategy.

Enrolment in VET in the last decade has been increasingly biased towards two occupational areas: economy and trade, which absorb over 25% of the students, followed by health science with approximately 19% of the students. The number of cohorts in other occupational areas, such as agriculture and veterinarian sciences, has undergone a steady decline (ILO, 2012).

SURVEY

A survey was conducted among teachers from target countries. Apart from getting basic background information about the respondents (teachers profile, age, area of expertise etc.), the main goal was to ascertain the level of knowledge about ICT tools and precision farming methods, among the teachers as well as its level of utilization for educational purposes.

In Hungary, 114 teachers took part in the survey, while in Macedonia, 44 teachers took part in it.

Background

The results of the first part of the survey showed that in both countries, around 2/3 of teachers are at the age of 50 or younger. This generation certainly is more open to new knowledge and methods that are beneficial to the project.

Knowledge of ICT

Both Hungary and Macedonia have shown good results in terms of overall awareness about ICT, with Hungary having higher percentage of teachers replying that they are actively utilizing the ICT in their educational activities. However, in both countries the majority of teachers do not use ICT tools for educational purposes.

Conclusions

In Hungary the vast majority of teachers have already heard about agricultural ICT tools and agriculture 4.0, but they are not actively using them, even though they have business experience in their own field of expertise.
In the Republic of Macedonia, from the results, we can conclude that the teachers are insufficiently informed about the opportunities for ICT tools that exist and circulate around them.

The results of the survey clearly indicate that the current curriculum does not contain up-to-date knowledge about e-agriculture and related technologies, both in Macedonia and in Hungary.

Aim of the project

Guide agricultural VET teachers in the renewing of their teaching methods by providing them a freely available online course "Teachers for Farming 4.0" based on a networked learning pedagogical model.
The project will integrate the networked learning methodology of a successful Leonardo project Tenegen with the pedagogical innovations of learner-centred methods such as the Creative Classroom (CC) and the Flipped Classroom (FC) model.
The learning environment and teaching model applied by this project is aligned with the pedagogical innovations of the ET 2020 framework, focusing for the development of 21st century skills, creativity, and the digital entrepreneurship of students.

Objectives

- A focused needs-analysis, and comparative study to identify the training needs by involving VET teachers and representatives of the beneficiaries - the agricultural companies.
- Developing a standard competency framework for agricultural workers and agricultural ICT practitioners aligned with EU standards such as the EQF and the e-Competence Framework.
- Curriculum Design based on the CAPDM methodology.
- Developing learning content for THREE MODULES:
  - M1 Reinventing agricultural education
  - M2 European Strategies and initiatives of e-Agriculture
  - M3 Digital systems within Agriculture 4.0
- Development of an online collaboration platform and the implementation of the components for "Teachers for Farming 4.0"
- Piloting the "Teacher for Farming 4.0" course (HU, MK).
- Refining the syllabus and the course components according to feedback from the participants.
- Planning for valorization and sustainability.

Project basics

TARGET GROUP
Agricultural VET teachers

BENEFICIARIES
Students, farmers, advisors

PARTICIPATING COUNTRIES
Hungary, Macedonia, Czech Republic, United Kingdom

TARGET COUNTRIES
Hungary, Macedonia

PROJECT START DATE
01-09-2017

PROJECT DURATION
24 months

COORDINATOR ORGANIZATION
Galamb József Agricultural Secondary School Hungary

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Erasmus+

Teachers for Farming 4.0 online course

Contact us

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- AG Futura Technologies - MK
- GAK Education, Research and Innovation Centre – HU
- CAPDM Limited – UK
- Wirelessinfo - CZ

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